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94763 7590 10/18/2010

Patent Law Works LLP/Toyota ITC
165 South Main Street
Second Floor
Salt Lake City, UT 84111

EXAMINER

SERROU, ABDELALI

ART UNIT

PAPER NUMBER

2626

DATE MAILED: 10/18/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/661,152

09/12/2003

Norikazu Endo

10003-02061

6804

TITLE OF INVENTION: METHOD AND SYSTEM FOR ADJUSTING THE VOICE PROMPT OF AN INTERACTIVE SYSTEM BASED UPON THE USER'S STATE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	01/18/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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94763 7590 10/18/2010

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/661,152 09/12/2003 Norikazu Endo 10003-02061 6804

TITLE OF INVENTION: METHOD AND SYSTEM FOR ADJUSTING THE VOICE PROMPT OF AN INTERACTIVE SYSTEM BASED UPON THE USER'S STATE

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 01/18/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
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SERROU, ABDELALI 2626 704-251000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Date _____

Typed or printed name _____

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1697 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1697 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/661,152	ENDO ET AL.	
	Examiner	Art Unit	
	Abdelali Serrou	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to BPAI Decision on 7/29/10.
2. ☒ The allowed claim(s) is/are 1, 5-15, 18-28, 31-40, 43-61.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other ____. |
|---|---|

DETAILED ACTION

1. In response to the BPAI decision from 7/296/2010, the previous grounds of rejection have been withdrawn.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Burbage on 10/05/10.

In the Claims:

Please amend claims 1, 5, 15, 28, 40 and 53 as set forth below.

1. A method of adjusting a voice prompt of a system based upon a state of a user of the system, the method comprising:

receiving an utterance of the user;

obtaining utterance parameters from the utterance, the utterance parameters indicating the state of the user;

determining the state of the user based upon an utterance parameter vector; and

adjusting the voice prompt by adjusting at least one of a tone of voice of the voice prompt, a content of the voice prompt, a prosody of the voice prompt, and a gender of the voice prompt based upon the determined state of the user, wherein obtaining utterance parameters comprises: partitioning the utterance into segments;

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assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user; and

determining a total number of one of the plurality of classifications divided by a total number of segments of the utterance for each of the plurality of states of the user to create the utterance parameter vector.

5. The method of claim 1, wherein converting the utterance parameter vector to an indication comprises applying a function to the utterance parameter vector to generate one of a scalar, a vector of fuzzy classes, and an index representing the state of the user.

15. A method of adjusting a voice prompt of a system based upon a state of a user of the system, the method comprising:

receiving an utterance of the user;

obtaining utterance parameters from the utterance, the utterance parameters indicating the state of the user;

generating an utterance parameter vector based upon the obtained utterance parameters;

converting the utterance parameter vector to an indication representing the state of the user;

determining the state of the user based upon the indication; and

adjusting the voice prompt based upon the determined state of the user, wherein obtaining utterance parameters comprises:

partitioning the utterance into segments; and

assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user, and wherein generating the

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utterance parameter vector comprises: determining the number of segments for each classification; and dividing the number of segments for each classification by a total number of segments in the utterance.

28. A system adjusting a voice prompt based upon a state of a user of the system, the system comprising:

- a signal processing module for obtaining utterance parameters from utterance received from the user, the utterance parameters indicating the state of the user;

- an utterance parameter vector generation module for generating an utterance parameter vector based upon the obtained utterance parameters;

- a user state determination module for converting the utterance parameter vector to an indication representing the state of the user and determining the state of the user based upon the indication; and

- a speech waveform storage module for selecting an audio waveform for the voice prompt based upon the determined state of the user, wherein the signal processing module obtains the utterance parameters by:

- partitioning the utterance into segments; and

- assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user, wherein the utterance parameter vector generation module generates the utterance parameter vector by:

- determining the number of segments for each classification; and

- dividing the number of segments for each classification by a total number of segments in the utterance.

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40. A system adjusting a voice prompt based upon a state of a user of the system, the system comprising:

a signal processing module for obtaining utterance parameters from utterance received from the user, the utterance parameters indicating the state of the user;

an utterance parameter vector generation module for generating an utterance parameter vector based upon the obtained utterance parameters;

a user state determination module for converting the utterance parameter vector to an indication representing the state of the user and determining the state of the user based upon the indication; and

a speech synthesizer module for generating an audio waveform of the voice prompt based upon the determined state of the user, wherein the signal processing module obtains the utterance parameters by:

partitioning the utterance into segments; and

assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user, wherein the utterance parameter vector generation module generates the utterance parameter vector by:

determining the number of segments for each classification; and

dividing the number of segments for each classification by a total number of segments in the utterance.

53. A system adjusting a voice prompt based upon a state of a user of the system, the system comprising:

means for obtaining utterance parameters from utterance received from the user, the

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utterance parameters indicating the state of the user;

means for determining the state of the user based upon the utterance parameters; and

means for adjusting the voice prompt by adjusting at least one of a tone of voice of the voice prompt, a content of the voice prompt, a prosody of the voice prompt, and a gender of the voice prompt based upon the determined state of the user, wherein the means for obtaining utterance parameters comprises:

means for partitioning the utterance into segments; and

means for assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user, wherein the means for determining the state of the user based upon the utterance comprises:

means for generating an utterance parameter vector based upon the utterance parameter by (1) determining the number of segments for each classification, and (2) dividing the number of segments for each classification by a total number of segments in the utterance.

Cancel claims: 3, 4, 17, 30, and 42.

Allowable Subject Matter

3. Claims 1, 5-15, 18-28, 31-40, and 43-61 are allowed.

The following is an examiner's statement of reasons for allowance:

The pending claims are directed to a method, system, and means for adjusting a voice prompt of a system based upon a state of a user of the system, the method comprising: receiving an utterance of the user; obtaining utterance parameters from the utterance, the utterance parameters indicating the state of the user; determining the state of the user based upon an

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utterance parameter vector; and adjusting the voice prompt by adjusting at least one of a tone of voice of the voice prompt, a content of the voice prompt, a prosody of the voice prompt, and a gender of the voice prompt based upon the determined state of the user, wherein obtaining utterance parameters comprises: partitioning the utterance into segments; assigning one of a plurality of classifications to each segment, each classification corresponding to at least one of a plurality of states of the user; and determining a total number of one of the plurality of classifications divided by a total number of segments of the utterance for each of the plurality of states of the user to create the utterance parameter vector.

The closest prior art references are:

Cooper (US 6,757,362) teaches receiving an utterance of the user (col. 2, line 39); obtaining utterance parameters from the utterance, the utterance parameters indicating the state of the user (col. 43, line 52 – col. 44, line 5, wherein the user's emotional state is determined based on words of the received utterance); determining the state of the user based upon the utterance parameters (col. 43, lines 62-67, wherein the Virtual Assistant (VA) determines the emotional state of the user based on the received utterances from the user) ; adjusting the voice prompt by adjusting at least one of a tone of voice of the voice prompt, a content of the voice prompt, a prosody of the voice prompt, and a gender of the voice prompt based upon the determined state of the user (col. 44, lines 1-4); and wherein obtaining parameters comprises partitioning the utterance into segments (col. 2, lines 58-64, wherein the system identifies the boundaries between the spoken words, by detecting a user's pauses when recording a message).

Nicholson (Emotion Recognition in Speech Using Neural Networks, Neural Computing & Applications, Volume 9, Number 4, pages 290-296, 2000) teaches emotion recognition in

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speech, wherein a received spoken utterance is identified and divided into a plurality of vectors representing intervals or segments of equal length in time (paragraph 2.4.2 *Speech feature extraction* on page 292), and then assigning an emotional state to every vector as shown in the emotion recognition stage of Fig. 3, i.e. v1 (anger), v2 (sadness) ...v8 (neutral), see pages 292-293.

However, the prior art does not teach or suggests determining the emotional state of a user based upon an utterance parameter vector, wherein the utterance parameter vector is created by determining a total number of one of a plurality of classifications divided by a total number of segments of the utterance for each of a plurality of states of the user.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelali Serrou whose telephone number is 571-272-7638. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James S. Wozniak can be reached on 571-272-7632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Abdelali Serrou/
Examiner, Art Unit 2626

/James S. Wozniak/
Supervisory Patent Examiner, Art Unit
2626